

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

We claim as our invention:

- C1
1. (previously amended) A monoclonal antibody having specificity to intracellular domains of two or more kinds of protein tyrosine phosphatases.
 2. (original) The antibody according to claim 1, wherein at least one of said protein tyrosine phosphatases is a receptor type protein tyrosine phosphatase.
 3. (original) The antibody according to claim 2, wherein said receptor type protein tyrosine phosphatase is LAR and/or CD45.
 4. (original) The antibody according to claim 2, wherein said receptor type protein tyrosine phosphatase is LAR and CD45.
 5. (previously amended) The antibody according to claim 1 having specificity to phosphatase domains of protein tyrosine phosphatases.
 6. (currently amended) The antibody according to claim 1, which is generated using a polypeptide that is encoded by a nucleotide sequence set forth ~~fourth~~ in SEQ ID NO: 1.
 7. (canceled)
 8. (previously amended) The antibody according to claim 1 wherein the antibody is generated using a fusion protein comprising a protein tyrosine phosphatase domain and another protein or a polypeptide, as an immunogen.
 9. (previously amended) The antibody according to claim 1 wherein the antibody is generated using a GST-LAR phosphatase domain fusion protein as an immunogen.
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10. (original) The antibody according to claim 9 wherein the GST-LAR phosphatase domain fusion protein is produced by: culturing Escherichia coli transformed or transfected with an expression vector comprising a coding region of GST gene and a coding region of a phosphatase domain of LAR gene at 20-30°C for 16-24 hours; and isolating the fusion protein from the culture fluid and/or bacterial cells.

11. (original) The antibody according to claim 10 wherein the GST-LAR phosphatase domain fusion protein is further purified based on an affinity to a support carrying glutathione, and the elution of said fusion protein from the support is performed by boiling in the presence of a detergent.

12. (previously amended) ^{KMD1} The antibody according to claim 8 wherein screening of the antibody that was generated using the fusion protein as an immunogen is performed using said fusion protein.

13. (currently amended) A monoclonal antibody having specificity to an intracellular domain of a protein tyrosine phosphatase, which is produced by a hybridoma with Accession No. FERM BP-6344.

CI 14. (currently amended) The antibody according to claim 1 7 having a molecular weight of about 146 kDA.

15. (currently amended) A hybridoma cell line that produces the monoclonal antibody according to claim 1 7.

16. (original) A hybridoma cell line with Accession No. FERM BP-6344.

over 17. (previously amended) A method for generating an antibody according to claim 1, comprising the step of:

immunizing an animal with a fusion protein that comprises a protein tyrosine phosphatase domain and another protein or a polypeptide fragment;
preparing a hybridoma cell line from an antibody-producing cell obtained from the immunized animal; and
producing a monoclonal antibody from the hybridoma cell line.

18. (previously amended) A method for generating an antibody according to claim 1, comprising the step of:

immunizing an animal with a GST-LAR phosphatase domain fusion protein;
preparing a hybridoma cell line from an antibody-producing cell obtained from the immunized animal; and
producing a monoclonal antibody from the hybridoma cell line.

19. (original) The method according to claim 18 wherein the GST-LAR phosphatase domain fusion protein is produced by: culturing Escherichia coli transformed or transfected with an expression vector comprising a coding region of GST gene and a coding region of a phosphatase domain of LAR gene at 20-30°C for 16-24 hours; and isolating the fusion protein from the culture fluid and/or bacterial cells.

20. (currently amended) The method according to claim 19 wherein the GST-LAR phosphatase domain fusion protein is further purified based on an affinity to a support carrying glutathione, and the elution of said fusion protein from the support is performed by boiling in the presence of a detergent.

21. (currently amended) The method according to claim 17, further comprising the step of:

screening antibodies generated in the ~~immunizing~~ producing step using said fusion protein.

22. (currently amended) A method for isolating a novel protein tyrosine phosphatase comprising a step of:

screening for a protein tyrosine phosphatase, using said antibody according to claim 1.

23. (previously amended) The method according to claim 22 wherein said screening comprises expression screening of a cDNA library.

24. (previously amended) A method of quantitative determination of protein tyrosine phosphatase and/or protein tyrosine phosphatase derived molecules comprising a step of:

determining an amount of protein tyrosine phosphatase protein and/or a fragment or a polypeptide that comprises at least a part of an intracellular domain of protein tyrosine phosphatase, which is contained in a test sample using the antibody according to claim 1.

25. (previously amended) The method according to claim 24 wherein the determining step comprises using said antibody in any of immunoblotting, immunoprecipitation and ELISA.

26. (previously amended) A method for quantitative determination of protein tyrosine phosphatase and/or protein tyrosine phosphatase derived molecules comprising steps of:

isolating protein tyrosine phosphatase and/or a fragment or a polypeptide that comprises at least a part of an intracellular domain of protein tyrosine phosphatase, from a test sample using the antibody according to claim 1; and

measuring an activity of the isolated protein, fragment or polypeptide.

27. (previously amended) The method according to claim 26 wherein said isolating step comprises affinity chromatography and/or immunoprecipitation with the antibody bound to a support.

28. (previously amended) A method for producing protein tyrosine phosphatase and/or protein tyrosine phosphatase derived molecules comprising a step of:

isolating protein tyrosine phosphatase protein and/or a fragment or a polypeptide that comprises at least a part of an intracellular domain of protein tyrosine phosphatase using the antibody according to claim 1.

29. (previously amended) The method according to claim 28 wherein said isolating step comprises affinity chromatography and/or immunoprecipitation with the antibody bound to a support.

30. (previously amended) A method for identifying the presence of protein tyrosine phosphatase and/or protein tyrosine phosphatase derived molecules within tissue comprising a step of:

cancel performing immunohistological examination using the antibody according to claim 1 to detect protein tyrosine phosphatase protein and/or a fragment or a polypeptide that comprises at least a part of an intracellular domain of protein tyrosine phosphatase.
